

# Make-Believe Aliens

**Subject:** Life science, Art

**Grade:** 4-12

**Lesson Topic:** Plant Characteristics

**Length:** 1-2 days

## **Learner Objective:**

1. Students will create imaginative “new” invasive weed alien, based upon adaptations and characteristics to be explained and demonstrated,
2. Students will be able to classify the alien according to plant parts, habitat, and defense mechanism,
3. Students will be able to:
  - a. orally describe adaptations alien plants use in their particular niches
  - b. orally describe how adaptations help plants use survive within their environment
  - c. orally describe the relationship between habitat and the presence of certain alien weed species

## **Introduction:**

This activity is designed to fit within the larger context of plant biology and invasive weed studies. Easily adapted in 4-12, *Make-Believe Aliens* combine science and art to help students learn about concepts such as adaptations, defense, habitats, and other plant characteristics. The students should rely on their experiences and knowledge gained in the previous lessons, and in particular the plant research papers they developed.

## **Content:**

While this activity satisfies several *National Science Education Standards* (NSES) outlined below, it also helps students gain understanding of invasive plant issues within their own community. An awareness of the environment’s level of health, and the factors that influence its health, helps our students become informed citizens. There will come a day when they will be involved with the decisions (development, pollution, land management, etc.) that affect the quality of our life and our environment.

Besides learning how plants adapt to specialized habitats (the niches within a particular habitat), students will learn that some of these plants are indicators of poor environmental health. Plant not only have specialized physical characteristics, but also adaptive characteristics that enable them to be successful within their unique habitats. When habitats are altered, either due to catastrophic events or by the action of humans, specialized plants such as many invasive weed species are often the first to indicate an imbalance.

## Materials and Supplies:

- A variety of construction paper, crepe or colored tissue paper
- Scissors
- Materials to decorate a very creative make-believe alien plant such as markers, sequins, ribbon, rick-rack, cotton, paper scraps, raffia, foil, beads, glitter, etc.
- Coat hanger wire or other stiff wire for stem
- Stapler
- Long pipe cleaners, green or brown
- Liquid glue (diluted ½ with water) and paint brush
- Modeling clay (to form stand)
- Student Instructions and worksheet (below)

## Anticipatory Set:

Normally when starting activities like this an instructor may show examples of the type of “creation” the students will make. However, it is recommended that sample make-believe aliens not be shown to students prior to the activity in order that the students might freely express themselves without preconceived notions cued by the work of others, and because this activity is intended to be an assessment of their understanding of invasive plants.

## Activity Outline:

Provide each student with the Make-Believe Alien Worksheet (see below).

The make-believe alien students create; along with the randomly chosen plant parts, will be based upon the adaptations and characteristics the students choose from the list on the worksheet. Students will put an **X** by each of their choices in each category, and the choices are entirely up to the individual student.

Once they have made their selections, students will be given three envelopes labeled with various plant parts. The envelopes contain plant parts from a variety of different weed species found in picture books, field guides, etc. (see Resources). Without looking, each student will reach in and choose one “plant part” from each envelope. Using these as a guide, along with the choice of adaptations and behaviors below, the students will create a “new” alien weed species!!

Providing a wide range of art materials will allow the students free expression in creating their alien. The most difficult step is creating the stem, and you may want to modify this procedure for younger students. Depending on the branching of their particular alien, the main stem is generally made from a length of coat hanger wire, with pipe cleaner wires wrapped around to form the secondary stems (either opposite or alternate stems). Colored tissue paper is dipped in a thin solution of wallpaper paste and wrapped around the wires, spiral fashion, to hold the pipe cleaners in place (this can be done “sloppily” to give the stem texture). The plant stems can then be bent into various shapes. Attaching leaves can be done in a similar manner by creating a leaf stem on each leaf, and using a small wrap of tissue to hold it in place. The students will continue in this general manner to build the alien stem, leaf structure, and flowers.

It goes without saying that the variations of this project are numerous, and depending on the supplies gathered, the age group, and available time, the alien plant

creations could become an amazing project. This would be a wonderful activity to invite parents to come and assist. Remember that the children are using real scientific terms and concepts to create a totally imaginary plant – the science is provided in a structured and defined manner, but expressing that knowledge, and the assessment through art, should be as free and open as possible.

Be sure they also give an appropriate name for their creation! Advanced students should also create a scientific name (at least *Genus species*) and the Latin roots of the scientific name should reflect specific characteristics of their Make-Believe Alien.

### **Closure and Assessment:**

When the plants are completed and dried they should be placed on display throughout the room or in your school. The final portion of the assessment is an oral presentation where the student report describes their Make-Believe Alien in scientific terms (see criteria of plant reports in the lesson *When Is A Rose Not A Rose*).

### **Independent Practice and Related Activities:**

Use the Make-Believe Aliens as part of a community outreach program.  
Create a Field-Of-Aliens Float for an Earth Day parade.

### **Resources:**

Plant drawings adapted to this activity from:  
*A Peterson Field Guide to the Wildflowers of North America*

### **Vocabulary:**

### **National Science Education Standards:**

Science Teaching Standard B: Teachers of science guide and facilitate learning

Science Teaching Standard C: Teachers of science engage in ongoing assessment

### **The National Standards for Arts Education:**

Content Standard #3: Choosing and evaluating a range of subject matter, symbols, and ideas

Content Standard #5: Reflecting upon and assessing the characteristics and merits

### **Skills:**

observation, classification, analysis, application, communication, description, identification, inference, invention, media construction, public speaking, reporting, small group work

# Make-Believe Aliens Worksheet

Student Name \_\_\_\_\_

Date \_\_\_\_\_

Your make-believe alien that you create; along with the randomly chosen plant parts your teacher will provide, will be based upon the adaptations and characteristics chosen from the following list. Put an **X** by each of your choices in each category.

- **Habitat**

forest\_\_\_\_ wetland\_\_\_\_ desert\_\_\_\_ meadow\_\_\_\_ pond or stream edge\_\_\_\_

- **# of seeds**

1-10\_\_\_\_ 11-100\_\_\_\_ 101-1000\_\_\_\_ 1001-10,000\_\_\_\_ 10,000+\_\_\_\_

- **Seed Dispersal**

Wind blown\_\_\_\_

Wind blown "parachutes"\_\_\_\_

Burrs that catch on fur\_\_\_\_

Falls to ground\_\_\_\_

Is "shot" from the seed pod\_\_\_\_

Consumed then dispersed by birds or other animals \_\_\_\_

- **Color of Flower** \_\_\_\_\_

- **Number of Flower Petals** \_\_\_\_\_

- **Defense**

Armed \_\_\_\_\_

Sticky \_\_\_\_\_

Bad Taste \_\_\_\_\_

Hairy \_\_\_\_\_

- **Tolerance to fire**

Intolerant (is killed by wildfire)\_\_\_\_

Somewhat tolerant (might survive wildfire)\_\_\_\_

Tolerant (survived and is enhanced by wildfire)\_\_\_\_

**Common Name of your Make-Believe Alien**

\_\_\_\_\_

**Scientific Name of your Make-Believe Alien**

\_\_\_\_\_

**Teacher initials here when this is completed and you are ready for the next step!!!** \_\_\_\_\_

## Make-Believe Aliens Worksheet cont.

To begin the activity, you will be given several envelopes labeled:

- ☐ ***Flower arrangements***
- ☐ ***Regular/irregular petals***
- ☐ ***Pistal parts***
- ☐ ***Ovary position***
- ☐ ***Special flower parts***
- ☐ ***Plant surface traits***
- ☐ ***Fruit types***
- ☐ ***Leaf Shapes***
- ☐ ***Leaf arrangements***
- ☐ ***Leaf base***
- ☐ ***Compound leaves***

The envelopes contain plant parts from a many different species of invasive weeds. Without looking, your teacher will let you reach in and choose one "plant part" from each envelope. The circled plant characteristic is the one you will be assigned. Using these as a guide, along with the choices you made on the first page, you will create a "new" alien plant species!!

**List the plant part names and make a drawing of the parts you picked from the envelopes and return your selections to the appropriate envelope (you may use the back of this sheet to design your alien plant):**

# Make-Believe Aliens Worksheet cont.

## Steps to help you make your Make-Believe Alien:

- Use wires to build the main stem and branches
- Cover the wires with crinkled tissue paper or other kind of paper
- Bend the wires to shape your plant
- Attach leaves
- Build a flower with the correct number and shape of petals
- Build and attach a seed pod (remember: a real plant may not have both seeds and flowers on the same plant, but hey, *this is an alien!!!*)
- Be as creative as you want with color, texture, and *special* features!

## Additional Notes:

**Record extra facts about your plant that you might imagine... these will become part of the story you tell when you describe you Make-Believe Alien to others! You may also want to include interesting facts about some of the alien weed species you have all ready learned about. (*some of the plant names and facts are on the slips of paper you selected from the envelopes... use these words to properly describe your alien plant when you present it to the class*)**

Plant drawings adapted to this activity from:  
*A Peterson Field Guide to the Wildflowers of North America*

# Make-Believe Aliens Plant Parts

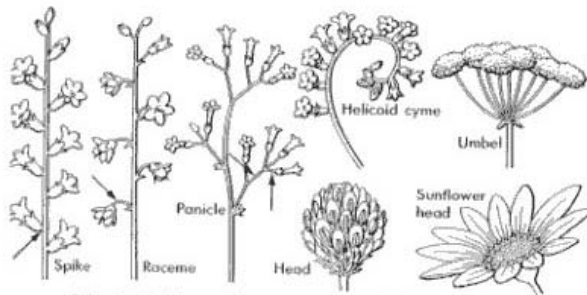
Instructions for Envelopes:

Label enough envelopes according to the following list:

- ☐ ***Flower arrangements***
- ☐ ***Regular/irregular petals***
- ☐ ***Pistal parts***
- ☐ ***Ovary position***
- ☐ ***Special flower parts***
- ☐ ***Plant surface traits***
- ☐ ***Fruit types***
- ☐ ***Leaf Shapes***
- ☐ ***Leaf arrangements***
- ☐ ***Leaf base***
- ☐ ***Compound leaves***

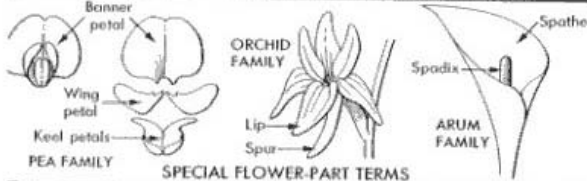
Make at least four copies of the plant characteristics below (the actual number will be dependent on class size). Cut out the different sections, and use a colored felt pen to circle one different characteristic on each section. For example, for the section titled *Flower Arrangements*, there are seven types of inflorescence. Circle one different type of inflorescence on each Xeroxed copy (if you made four copies you would have circled four different types). Place these in the corresponding envelope. Repeat this for all plant sections. When students draw from the "flower arrangement" envelope, they will draw one slip of paper only, and the circled item will be part of their alien plant.

# Make-Believe Alien Plant Parts A

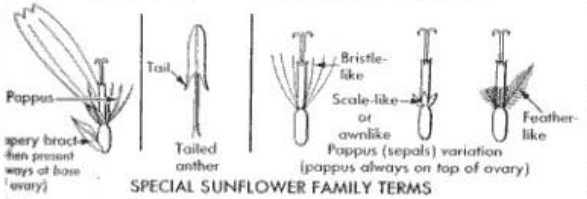
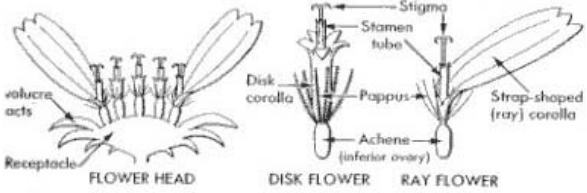


**Spike:** Individual flowers without pedicels on a single nonbranching stem.  
**Raceme:** Individual flowers with a pedicel on a single nonbranching stem.  
**Panicle:** Flowers with a pedicel and on a branched nonbranching stem.  
**Helicoid cyme:** A coiled branching stem with youngest flowers at tip.  
**Umbel:** All flowers have pedicels attached at same point.  
**Head:** A dense cluster of flowers without pedicels on a single stem.

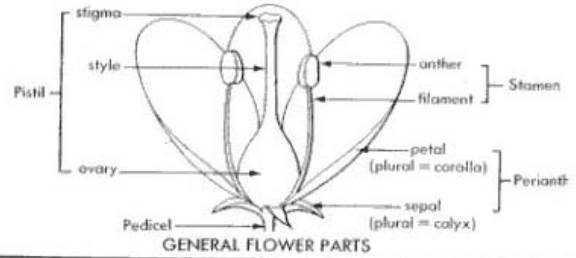
## FLOWER ARRANGEMENTS ON STEM (INFLORESCENCES)



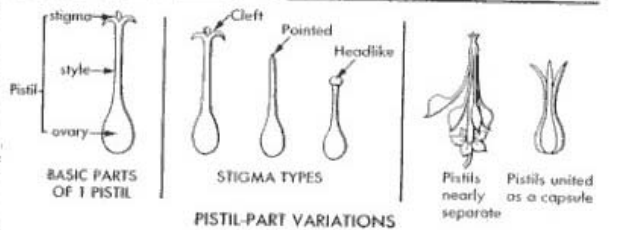
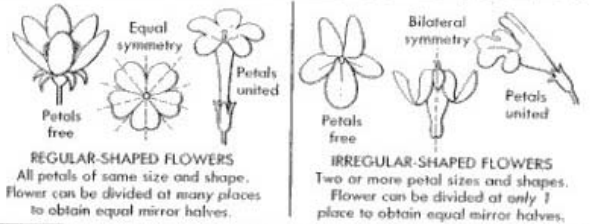
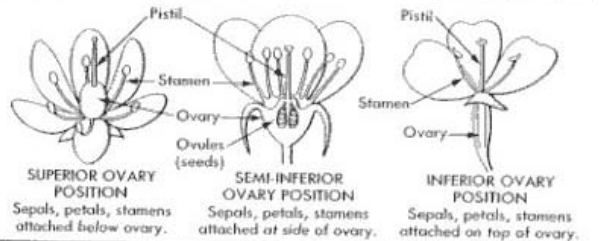
## SPECIAL FLOWER-PART TERMS



## SPECIAL SUNFLOWER FAMILY TERMS



## GENERAL FLOWER PARTS





# Make-Believe Alien Plant Parts B

